USEPA START REGION 6 - HEALTH AND SAFETY PLAN
EMERGENCY RESPONSE

BACKGROUND AND CONTRACT INFORMATION

Prepared by: S. Check

W.O. No.: 20406.012.

Date of Response: 4/17/2013

Project Identification:
Contract No.
TDD: West Fert. Fire
Site Name: TBD 1491 Jerry Maybeck Drive.
Site Address:

EPA OSC: Mark Hayes
Phone Number: 214-754-
Site Contact: N/A
Phone Number: N/A

Tier of Response:
☐ 1 ☐ 2 ☑ ~~3~~
☐ 4 ☐ 5 ☐ 6

Site History/Current Information: (describe briefly)
Fertilizer Plant Explosion

Scope of Work: (describe briefly, attach site map including work zones)
TBD - Air Monitoring

Directions to Site: See Map

Location: ☑ Industrial ☑ Commercial ☑ Urban/Residential ☐ Rural ☐ Government Facility

Physical Description of Site (draw line across non-applicable item(s))
Size of Site: ~~sq. ft~~ 11 Acres
Nearest waterway. Name: NA Distance from site: feet
Distance of site to nearest residence: <500 feet
Distance to nearest school: <500 feet
Distance to nearest public building: <1500 feet

Response Team

TRAINING REQUIREMENTS: Emergency Response Team Members must have current training certification in HAZWOPER in compliance with 29 CFR 1910 and 29 CFR 1926, including specialty training such as Confined Space Entry, as appropriate.

MEDICAL REQUIREMENTS: Emergency Response Team Members must be certified as medically fit to work with Hazardous Materials and Hazardous Chemicals, and to wear a respirator, if appropriate, in accordance with 29 CFR 1910 and 29 CFR 1926.

FIT TEST REQUIREMENTS: Emergency Response Team Members entering any area requiring the use or potential use of any respirator must have had as a minimum, a qualitative fit test, administered in accordance with OSHA 29 CFR 1910.134 or ANSI within the last 12 months.

Signatures below indicate that team members have read and agree to follow the provisions of this HASP.

Reviewed by:
START Site Team Leader: Ben Lutham / Sam Check
Signature: Date: 4/18/13

☐ Medical Current ☐ Training Current
☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)
☐ SHSC training completed ☐ EC/RCRA training completed

Jeff Lowellin 4/21/13

Site Safety Officer/Site Environmental Compliance Officer: Sam Check
Signature: Date: 4/16/2013

☑ Medical Current ☑ Training Current
☑ Fit Test Current (Qual.) ☑ Fit Test Current (Quant.)
☑ SHSC training completed ☑ EC/RCRA training completed

9430842

Team Member: David McLarty, Ben Lathan, David Crow, Alex Byrum

Signature: DSMcL Date:

☐ Medical Current ☐ Training Current

☐ Fit Test Current (Qual.) ☐ Fit Test Current (Quant.)

Team Member: Derrick Cobb, Tom Walzer, Mark Balhoff, Lee Ellacker, Jeff Lewellin

Signature: Date:

☑ Medical Current ☑ Training Current

☑ Fit Test Current (Qual.) ☑ Fit Test Current (Quant.)

SITE SPECIFIC HAZARD EVALUATION

A copy of the Field Operations Manual must be available to all team members. See ER vehicle for a copy of the manual.

☐ **BIOLOGICAL HAZARDS** ☐ **RADIATION HAZARDS**

☑ **CHEMICAL HAZARDS** ☑ **PHYSICAL HAZARDS**

Biological Hazards:

☑ Animals ☐ Reptiles ☐ Poisonous Plants

☐ Snakes ☑ Insects ☐ Raw Sewage

☐ BBP ☐ Etiologic Agents

FLD 43 — WESTON Biohazard Field Operating Procedures
FLD 44 — WESTON BBP Exposure Control Plan - First Aid Procedures
FLD 45 — WESTON BBP Exposure Control Plan – Working with Infectious Waste

Radiation Hazards:

☐ **Ionizing Radiation**

☑ **Non-Ionizing Radiation (includes ultraviolet, infrared, radio-frequency, microwave, and laser)**

☐ **NORM**

Chemical Hazards:

☑ Explosive ☐ Corrosive ☐ Reactive ☐ Water Reactive

☑ **Flammable** ☐ Oxidizer ☐ Other -

Special Considerations

Helicopter/Airplane Operations – Pilots must provide safety briefings for all passengers

Carbon Monoxide – Personnel should not linger or work near exhaust pipes from vehicles or equipment

UV light exposure – Personnel should dress so as to cover as much exposed skin as possible, use a sunscreen with a protection factor (PF) of 15 or greater and wear tinted safety glasses.

Motor Vehicles - Drivers shall maintain a safe speed at all times and seat belts must be worn.

Security- Evaluate site security of the response location (preresponse). Address any concerns to your Health and Safety Officer.

List of Chemicals and Quantities/Concentrations: (attach chemical information or MSDS for contaminant or spilled material in Appendix A).

Note: MSDS for materials brought for the response (eg. calibration gases, rinsing solutions, etc…) do not have to be attached to the HASP. However, copies of the MSDS must be available on site at all times.

HEALTH AND SAFETY EVALUATION

1.1.1 Physical Hazards of Concern

Physical Hazard Condition	Physical Hazard	Attach OP	WESTON OP Titles
Loud noise	Hearing loss/disruption of communication	☐	Section 7.0 - ECH&S Program Manual Occupational Noise & HC Program
Inclement weather	Rain/humidity/cold/ice/snow/lightning	☒	FLD02 - Inclement Weather
Steam heat stress	Burns/displaced oxygen/wet working surfaces	☐	FLD03 - Hot Process - Steam
Heat stress	Burns/hot surfaces/low pressure steam	☒	FLD04 - Hot Process - LT3
Ambient heat stress	Heat rash/cramps/exhaustion/heat stroke	☐	FLD05 - Heat Stress Prevention/Monitoring
Cold stress	Hypothermia/frostbite	☒	FLD06 - Cold Stress
Cold/wet	Trench/paddy/immersion foot/edema	☐	FLD02 - Inclement Weather
Confined spaces	Falls/burns/drowning/engulfment/electrocution	☐	FLD08 - Confined Space Entry
Industrial Trucks	Fork Lift Truck Safety	☐	FLD09 – Powered Industrial Trucks
Improper lifting	Back strain/abdomen/arm/leg muscle/joint injury	☐	FLD10 - Manual Lifting/Handling Heavy Objects
Uneven surfaces	Vehicle accidents/slips/trips/falls	☒	FLD11 - Rough Terrain
Poor housekeeping	Slips/trips/falls/punctures/cuts/fires	☒	FLD12 - Housekeeping
Structural integrity	Crushing/overhead hazards/compromised floors	☐	FLD13 - Structural Integrity
Hostile persons	Bodily injury	☐	FLD14 - Site Security
Improper cylinder. handling	Mechanical injury/fire/explosion/suffocation	☐	FLD16 - Pressure Systems - Compressed Gases
Water hazards	Poor visibility/entanglement/drowning/cold stress	☐	FLD17 - Diving
Water hazards	Drowning/heat/cold stress/hypothermia/falls	☐	FLD18 - Operation and Use of Boats
Water hazards	Drowning/frostbite/hypothermia/falls/electrocution	☐	FLD19 - Working Over Water
Vehicle hazards	Struck by vehicle/collision	☒	FLD20 - Traffic
Explosions	Explosion/fire/thermal burns	☒	FLD21 - Explosives
Moving mechanical parts	Crushing/pinch points/overhead hazards/electrocution	☐	FLD22 – Earth Moving Equipment
Moving mech. parts	Overhead hazards/electrocution	☐	FLD23 – Cranes, Rigging, and Slings
Working at elevation	Overhead hazards/falls/electrocution	☐	FLD24 - Aerial Lifts/Man lifts
Working at elevation	Overhead hazards/falls/electrocution	☐	FLD25 - Working at Elevation
Working at elevation	Overhead hazards/falls/electrocution/slips	☐	FLD26 - Ladders
Working at elevation	Slips/trips/falls/overhead hazards	☐	FLD27 - Scaffolding
Trench cave-in	Crushing/falling/overhead hazards/suffocation	☐	FLD28 - Excavating/Trenching
Physiochemical	Explosions/fires from oxidizing, flam./corr. material	☒	FLD30 - Hazardous Materials Use/Storage
Physiochemical	Fire and explosion	☐	FLD31 - Fire Prevention/Response Plan Required
Physiochemical	Fire	☐	FLD32 - Fire Extinguishers Required
Structural integrity	Overhead/electrocution/slips/trips/falls/fire	☐	FLD33 - Demolition
Electrical	Electrocution/shock/thermal burns	☐	FLD34 - Utilities
Electrical	Electrocution/shock/thermal burns	☐	FLD35 - Electrical Safety
Burns/fires	Heat stress/fires/burns	☐	FLD36 - Welding/Cutting/Brazing/Radiography
Impact/thermal	Thermal burns/high pressure impaction/heat stress	☐	FLD37 - Pressure Washers/Sand Blasting
Impaction/electrical	Smashing body parts/pinching/cuts/electrocution	☐	FLD38 - Hand and Power Tools
Poor visibility	Slips/trips/falls	☒	FLD39 - Illumination
Fire/explosion	Burns/impaction	☐	FLD40 - Storage Tank Removal/Decommissioning
Communications	Disruption of communications	☐	FLD41 - Std. Hand/Emergency Signals
Energy/release	Unexpected release of energy	☐	FLD42 - Lockout/Tag-out
Biological Hazards	Biological Hazards at site	☒	FLD43 - Biological Hazards
Biological Hazards/BBP	Biological Hazards/BBP at site/First Aid Providers	☒	FLD44 - Biological Hazards – Bloodborne Pathogens Exposure Cont Plan – First Aid Providers
Infectious Waste	Infectious Waste at site/BBP/ at site/Infectious Waste	☐	FLD45 – Biological Hazards – Bloodborne Pathogens Exposure Con Plan – Work With Infectious Waste
Lead Contaminated sites	Lead poisoning	☐	FLD46 - Control of Exposure to Lead
Puncture/cuts	Cuts/ dismemberment/gouges	☐	FLD47 - Clearing, Grubbing and Logging Operations

Physical Hazard Condition	Physical Hazard	Attach OP	WESTON OP Titles
Not applicable	Not applicable	☒	FLD48 – Federal, State, Local Regulatory Agency Inspections
Not applicable	Exposure to hazardous materials/waste	☐	FLD49 – Safe Storage of Samples
Cadmium	Exposure Control	☐	FLD50 – Cadmium Exposure Control Plan
Process Safety Procedure	Safety Procedure	☐	FLD51 – Process Safety Procedure
Asbestos	Asbestos Exposure	☐	FLD52 – Asbestos Exposure Control Plan
Hexavalent Chromium	Exposure Control Plan	☐	FLD53 – Hexavalent Chromium Exposure Control Plan
Benzene	Exposure Control Plan	☐	FLD54 - Benzene Exposure Control Plan
Hydrofluoric acid	Working with HF	☐	FLD55 – Working with Hydrofluoric Acid
Moving drill rig parts	Crushing/pinch points/overhead hazards/electrocution	☐	FLD56 – Drilling Safety
Vehicles/driving	Accidents,/fatigue/cell phone use	☒	FLD 57 – Motor Vehicle Safety
Improper material handling	Back injury/crushing from load shifts/equipment/tools	☐	FLD 58 – Drum Handling Operations
COC decontamination	COCs/slip,trip, and falls/waste generation/environmental compliance/PPE	☐	FLD59 - Decontamination
Drilling hazards	Electrocution/overhead hazards/pinch points	☐	Environmental Remediation Drilling Safety Guideline - 2005
Fatigue	Long work hours	☒	FLD60 – Employee Duty Schedule
Benzene/Gasoline	Benzene exposure	☐	FLD61 – Gasoline Contaminant Exposure
Cardiac Arrest	Accident/Heart Attack	☐	FLD62 – 2009 Automatic External Defibrillator (AED) Program Guidelines
Ionizing Radiation	Ionizing Radiation	☐	FLD63 – Using Handheld X-Ray Fluorescence (XRF) Analyzers
Working Alone	Isolated Working Conditions	☐	FLD64 – Employees Working Alone

Some Field Operations have been removed from this list which has been developed for Emergency Response purposes. If these Field Ops apply, refer to the WESTON Safety Officer Field Manual.

Please include a copy of the local 5 day forecast at the end of your HASP

PERSONNEL PROTECTIVE EQUIPMENT – TBD

Tasks to Be Performed	Anticipated Level of Protection	Type of Chemical Protective Clothing	Inner Glove Outer Glove Boot Cover	Type of Respirator (SCBA or APR with Cartridge)
Perimeter Recon	D	Field	NA	NA
Site Entry	D	Field	↓	↓
Visual Documentation	D	Field	↓	↓
Sampling	D	Field	↓	↓
Decontamination				
Other				

DECONTAMINATION PROCEDURES

For Site Personnel:

- [x] None Anticipated
- [ ] Dry Decontamination
- [ ] Wet Decontamination (procedures as follows)
  - [ ] Wash boots and gloves
  - [ ] Remove outer boots
  - [ ] Remove outer gloves
  - [ ] Remove chemical coverall
  - [ ] Remove respiratory protection
  - [ ] Remove inner gloves

For Equipment:

- [x] None Anticipated
- [ ] Dry Decontamination
- [ ] Wet Decontamination (select one or more of the following)
  - [ ] Wash with soap and water
  - [ ] Rinse with distilled water
  - [ ] Rinse with isopropanol
  - [ ] Rinse with methane
  - [ ] Rinse with hexane
  - [ ] Rinse with nitric Acid

The levels of protection required for personnel <u>assisting</u> with decontamination will be:

☐ Level A ☐ Level B ☐ Level C ☐ Level D, Modified ☒ Level D

Disposal of decontamination wastes and spent PPE: (provide a description, including storage area, hauler, and final disposal site, if applicable)

COMMUNICATION

☑ Buddy System ☐ Radio ☐ Air Horn for emergencies ☐ Pager
☐ Hand Signals ☐ Visual Contact ☐ Car Horn (3 quick blasts for evac.) ☑ Cell Phone

General Signals:

THUMBS UP – I'm OK/I Agree
THUMBS DOWN – I Don't Agree
HANDS ACROSS THROAT – Out of Air/Trouble Breathing
GRAB HAND/ARM – Come with Me
HANDS ON HEAD – I Need Assistance

List site cell phone #:

Check 972-977-1579
Anbury 214-926-8475
Latham
* See Site Contact List

HAZARD MONITORING

	Multigas monitor (eg. MultiRAE, MultiWarn, Passport)	Toxic gas monitor (VRae or PAC III)	Radiation monitor (eg. Ludlum 19, Ludlum Model 3, RAM 4)	PID/FID (eg. Photovac, MicroFID, HNU, Foxboro OVA or TVA)	Miniram (dust)	Draeger Tubes	OTHER
Direct Reading Instruments							
Action Level	For LEL >25% open air – Leave >10% CSE - Leave For oxygen < 19.5%, >23% - Leave For toxics, see next column	See exposure limit for each chemical prior to starting work, leave when alarms activate.	3X background to 1 mR/HR – Caution; 1 mR/HR -- Leave	For Unknowns: 1-5 units, upgrade to Level C 5-500 units, upgrade to Level B	Visible dust >2.5 mg/m^3, sustained for 15 minutes, implement Engineering controls or upgrade to Level C	See exposure limits for each chemical	

Frequency and Types of Monitoring: (give frequency for routine and periodic monitoring)

Tasks to be Performed	Monitoring Instruments	Upon Entry (E) or Continuous (C)	Perimeter	Routine (R) or Periodic (P)
Perimeter Recon	MultiRae w/ NH_3	E/C	Y	R
Site Entry	MultiRae w/ NH_3	E/C	Y	R
Visual Documentation	"	"	"	R
Sampling	"	"	"	R
Decontamination				
Other				

TBD

SAMPLING ACTIVITIES

☐ Yes ☑ No

Describe types of samples and methods used to obtain samples:

WHAT: Air Surface Water Ground Water Drum/Tank Soil Sediment Biological Wipe Other:_____

HOW: Poly Scoop Drum Thief/Coliwasa SS trowel/spoon Split Spoon Auger Bailer Dredge Bottle Immersion Pump Low-Flow Pump Other:_____

Name of Dangerous Goods Shipper: _____

Was laboratory notified of potential hazard level of samples? ☐ Yes ☐ No

VEHICLE USE ASSESSMENT AND SELECTION:

Driving is one of the most hazardous and frequent activities for Weston employees. The most appropriate type vehicle(s) authorized for use on this project is/are:

1. ER Truck
2. Dodge Truck
3. _____
4. _____

The following Project Team Member's qualifications and experience in driving these types vehicles was evaluated and found to be acceptable (indicate vehicles types(s) number next to employee name).

1. Sam Cheek (1, 2)
2. David McCarty (1, 2)
3. David Crow (1, 2)
4. Ben Latham (1, 2)
5. Derrick Cobb (1, 2)
6. Tom Walker (1, 2)
7. Mark Bathoff (1, 2)
8. Lee Ellmaker (1, 2)
9. _____
10. _____

The project site was evaluated and a **Traffic Control Plan** ☐ is required ☒ is not required.

If required, the **Traffic Control Plan** can be found in Appendix _____ of this HASP.

EMERGENCY CONTACTS

Agency	Contact	Phone Number
Fire/Police/Ambulance		911
WorkCare WESTON Medical Director WorkCare WESTON Program Administrator	**Dr. Peter Greaney** **Heather Lind**	**From 6 am to 4:30 pm Pacific Time** call 800-455-6155 dial 0 or extension 175, Heather Lind to request the on-call clinician.
After-Business Hours Contact (In Case of Emergency Only)		**4:31 p.m. – 5:59 a.m. Pacific Time, all day Saturday, Sunday and Holidays** call 800-455-6155 Dial 3 to reach the after-hours answering service. Request that the service connect you with the on-call clinician or the on-call clinician will return your call within 30 minutes.
WESTON Health and Safety	Corporate Health and Safety Department	610-701-3065 or 610-506-5392 (cell)
WESTON Southern Division Health and Safety	Jim Davis	Office – (251) 602-1898 / Cell (334) 319-0380
WESTON Local Health and Safety	Samuel O. Cheek (Dallas/San Antonio) J D Grosbeck (Austin) Ben Latham (START HSO)	469-374-7785/972-977-1579 (cell) 512-651-7155/ 512-657-6866 (cell) 469-374-7717/ 972-213-6618 (cell)
WESTON Equipment and Dangerous Goods Shipping Advisor	Danny Newman	713-796-0040 – whse 713-301-7702 – CELL
WESTON START Program Manager	Robert Beck	704-895-5222
WESTON Readiness Coordinator	David Crow	469-374-7750 (office) 972-978-6802 (cell)
National Response Center		1-800-424-8802
Region 6 EPA Hotline	866-EPA-SPILL	1-866-372-7745
OSHA Hotline		1-800-321-6742
Chem-Tel		1-800-255-3924
ATSDR		(404) 639-0615
ATF (explosives information)		1-800-800-3855
Chemtrec		1-800-424-9300
START Health and Safety Pager	Paul Callahan	781-958-9297

Local Medical Emergency Facility	Lake Whitney Medical Center	
Name of Hospital:	Whitney, Texas	
Address:	200 N. San Jacinto St.	**Phone No.:** 254-694-3165
Note: Call to verify hospital's availability and type of ER capabilities		
Type of Service: ☐ Physical trauma only ☐ Chemical exposure only ☑ Physical trauma and chemical exposure ☑ Available 24 hours	**Route to Hospital (written detail):** **See Attachment D for route to hospital.**	**Travel time from site:** approx. 20 minutes **Distance to hospital:** approx. 20 miles

REVIEW AND COMMENTS

Final Submission of HASP by: _____ Date:

Post-Response Review by START Safety Officer: _____ Date:

Project start date: 4/19/2013 End date: TBD	Plan expiration date: 10/17/2013	Amendments:

Disclaimer: This Health and Safety Plan (HASP) was prepared solely for specific work assigned to WESTON and its subcontractors under the START Region 6 Contract (EP-W-06-42). Use of this HASP by WESTON and its subcontractors is intended to fulfill OSHA requirements as found in 29CFR1910.120. Items not specifically covered within this HASP or its attachments are included by reference to 29CRR1910 and 29CFR1926. To the extent other parties wish to rely on this HASP, they should review its contents and satisfy themselves that it meets requirements for their work assignments.

11. TASK-BY-TASK ASSESSMENTS

Task-By-Task Assessment
(COMPLETE ONE SHEET FOR EACH TASK)

TASK DESCRIPTION

Collect Soil Samples for Pesticide (insecticide/herbicide/fungicide) analysis at locations determined by EPA.

EQUIPMENT REQUIRED/USED

(Be specific, e.g., hand tools, heavy equipment, instruments, PPE)

Scoops, sample jars, baggies, tape, coolers.

POTENTIAL HAZARDS/RISKS

Chemical

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Hazards associated with the site incident (chemical releases) have been mitigated and air monitoring has not inidicated elevated readings of contaminants of concern (ammonia). Proper ppe (Level D) will be utilized.

Physical

☒ Hazard Present Risk Level: ☐ H ☒ M ☐ L

What justifies risk level?

Hazard associated with driving to and from sampling locations, and debris. Staff will drive defensively and maintain situational awareness.

Biological

☒ Hazard Present Risk Level: ☐ H ☐ M ☒ L

What justifies risk level?

Insects and reptiles potentially present in the sampling area.

RADIOLOGICAL

☐ Hazard Present Risk Level: ☐ H ☐ M ☐ L

What justifies risk level?

LEVELS OF PROTECTION/JUSTIFICATION

Level D PPE

SAFETY PROCEDURES REQUIRED AND/OR FIELD OPS UTILIZED

FLDs 02, 11, 12, 20, 43, 44, 48, 57, 60.

ATTACHMENT A

CHEMICAL CONTAMINANTS

(Attach appropriate Material Safety Data Sheet or fill out Chemical Hazards Evaluation Form.)

HEALTH AND SAFETY EVALUATION — ☐ CHEMICAL HAZARDS

Hazardous Substance	Physical Properties	Normal Physical State	State At Site/Proj. Temp.	Characteristics	Exposure Limits	Route(s) of Exposure/ Symptoms	Monitoring Instruments/ Ionization Potential
Name: Unknown	☐ Explosive ☐ Flammable ☐ Corrosive ☐ Reactive ☐ Water Reactive ☐ Oxidizer ☐ Radioactive ☐ Other	☐ Solid ☐ Liquid ☐ Gas Color:	☐ Solid ☐ Liquid ☐ Gas Color:	pH: FP: LEL: UEL: Auto. Ig.: BP:	☐ CA ☐ PEL _____ ☐ TLV _____ ☐ IDLH _____ ☐ Only toxicological data available ☐ Other:	☐ Inhalation ☐ Ingestion ☐ Skin Absorption ☐ Contact ☐ Direct Penetration ☐ Other:	☐ PID ☐ 11.7 eV ☐ 10.2 eV ☐ FID ☐ CGI ☐ Radiation ☐ Colorimetric tube Other:
CAS No:		Incompatible With:		MP: Sp. Gr.: Vap. D.: Vap. P.: H_2O Sol.: Other:		Acute Symptoms: First Aid:	IP: % Relative response:
Synonyms:							

Calculating Action Levels

For organic contaminants of concern, the following formula is used for each compound known or suspected to be present.

Ammonia	Units
REL*	25
PEL*	1
uipment Reference/correction fact	9.7
Safety Factor	2
Action Level:	121.25

Action Level for Ammonia for NH# sensors is 12.5 based on 25 ppm REL.

Inorganiccontaminant action levels are not much more difficult to calculate; however an aerosol monitor like the Mini-Ram doesn't really have a response factor. It measures total aerosol (dust) concentrations, so you need to convert soil contaminant levels into the amount of contaminant present in the soil that becomes airborne in order to determine exposure levels. That conversion can be done using the following formulas:

No Contaminant of Concern:
Use the OSHA Nuisance Dust PEL of 5 mg/m3 divided by 2 for an Action Level of 2.5 mg/m3.

ATTACHMENT B

SITE SPECIFIC HAZARD COMMUNICATION PROGRAM

Location Specific Hazard Communications Program/Checklist

In order to ensure an understanding of and compliance with the Hazard Communication Standard, this checklist/document in conjunction with the WESTON Written Hazard Communications Program serves as a means of meeting site or location specific requirements. While responsibility for activities within this document reference the WESTON Safety Officer, it is the responsibility of all personnel to effect compliance.

X Site or other location name/address: West Fertilizer, 1471 Jerry Mashek Drive, West, Texas

X Site/Project/Location Manager: Sam Check / Ben Lathan

X Site/Location Safety Officer: Sam Check

X List of chemicals complied, format: HASP: ✓ Other: ____

X Location of MSDS Files: HASP - if any -

X Training Conducted by (name and date): Site Hazleman

X Indicate format of training documentation: Field Log: X Other: X EHS Track

NA Client briefing conducted regarding hazard communication:

NA WESTON notified of other employer's or clients hazard communication program as necessary.

List of Hazardous Chemicals/ Material Safety Data Sheets (MSDS)

A list of known hazardous chemicals used by WESTON personnel must be prepared and attached to this document or in a centrally identified location with the MSDS. The SO or location manager is responsible for ensuring the chemical listing remains up-to-date and that when a revised MSDS becomes available, the old one is replaced. A log for, and copies of, MSDS for all hazardous chemicals in use will be kept in the MSDS folder at a location known to all site workers and will be readily available to all employees during each work shift.

Container Labeling

The WESTON Safety Officer (SO) will verify that all containers received from the chemical manufacturer, importer or distributor for use on site will be clearly labeled. The SO is responsible for assuring labels are placed where required and for comparing MSDS's and other information with label information to ensure correctness.

Employee Training and Information

The SO is responsible for the WESTON site-specific personnel-training program. The SO will ensure that all program elements specified below are supplied to all affected employees. At the time of initial assignment for employees to the work site or whenever a new hazard is introduced into the work area employees will attend a health and safety meeting or briefing that includes the information indicated below.

- Hazardous chemicals present at the worksite
- Physical and health risks of the hazardous chemicals
- The signs and symptoms of overexposure
- Procedures to follow if employees are overexposed to hazardous chemicals
- Location of the MSDS file and written hazard communication program
- How to determine the presence or release of hazardous chemicals in the employees work area
- How to read labels and review MSDS's to obtain hazard information
- Steps WESTON has taken to reduce or prevent exposure to hazardous chemicals
- How to reduce or prevent exposure to hazardous chemicals through use of controls procedures, work practices and personal protective equipment
- Hazardous, non-routine tasks to be performed (if any)
- Chemicals within unlabeled piping (if any)

Chemicals in Unlabeled Pipes

Work activities may be performed by employees in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these areas, the employee shall contact the SO at which time information as to; the chemical(s) in the pipes, potential hazards of the chemicals or the process involved, and safety precautions which should be taken will be determined and presented.

Multi-Employer Worksites

It is the responsibility of the SO to provide other employers with information about hazardous chemicals imported by WESTON to which their employees may be exposed, along with suggested safety precautions. It is also the responsibility of SO and the site manager to obtain information about hazardous chemicals used by other employers to which WESTON employees may be exposed. WESTON's chemical listing will be made available to other employers as requested. MSDS will be available for viewing as necessary.

The location, format and/or procedures for accessing MSDS information must be relayed to affected employees.

ATTACHMENT C

EQUIPMENT CHECKLIST

CHECKLIST

PPE	Instrumentation	Other
☒ Hard Hat – if overhead hazards	☒ Multigas monitor	☐ 35mm camera (print) and film
☒ Safety Glasses	☐ Toxic gas monitor-specify chemical	☒ Digital camera and diskettes or downloading equipment
☐ Face Shield	☐ FID	☐ Intrinsically safe flashlight and batteries
☐ Ear Plugs	☐ PID	☐ GPS and batteries
☐ Coverall (cotton)	☐ Radiation meter	☒ Computer with cables
☐ Coverall (Tyvek)	☒ Particulate meter	☐ Sampling supplies (S box)
☐ Coverall (Saranex)	☐ Colorimetric tube	☒ First Aid Kit
☐ Rain Suit	☐ pH paper	☒ Fire extinguisher
☐ Gloves latex	☐ SpilFyter strips	☐ Duct tape
☐ Gloves nitrile (inner)	☐ Hazcat kit	☐ Garbage bags
☐ Gloves nitrile (outer)	☐ Hapsite	☒ Log Book
☐ Gloves butyl rubber	☐ Other (specify)	☐ Radios
☐ Gloves Silver Shields(outer)		☐ Mobile phone, pager
☒ Safety Boots		☐ Site maps
☐ Over boots (latex booties)		☐ Compass
☐ Rubber Boots		☐ Site safety plan
☐ Respirator (Full Face APR)		☐ Instructions for motor vehicle incident
☒ Cartridge (GMC-P100)		☒ MSDS for calibration gases, solutions, etc… → needed
☐ SCBA		☐ Other (specify)
☐ Level A Suit		
☐ Other (specify)		

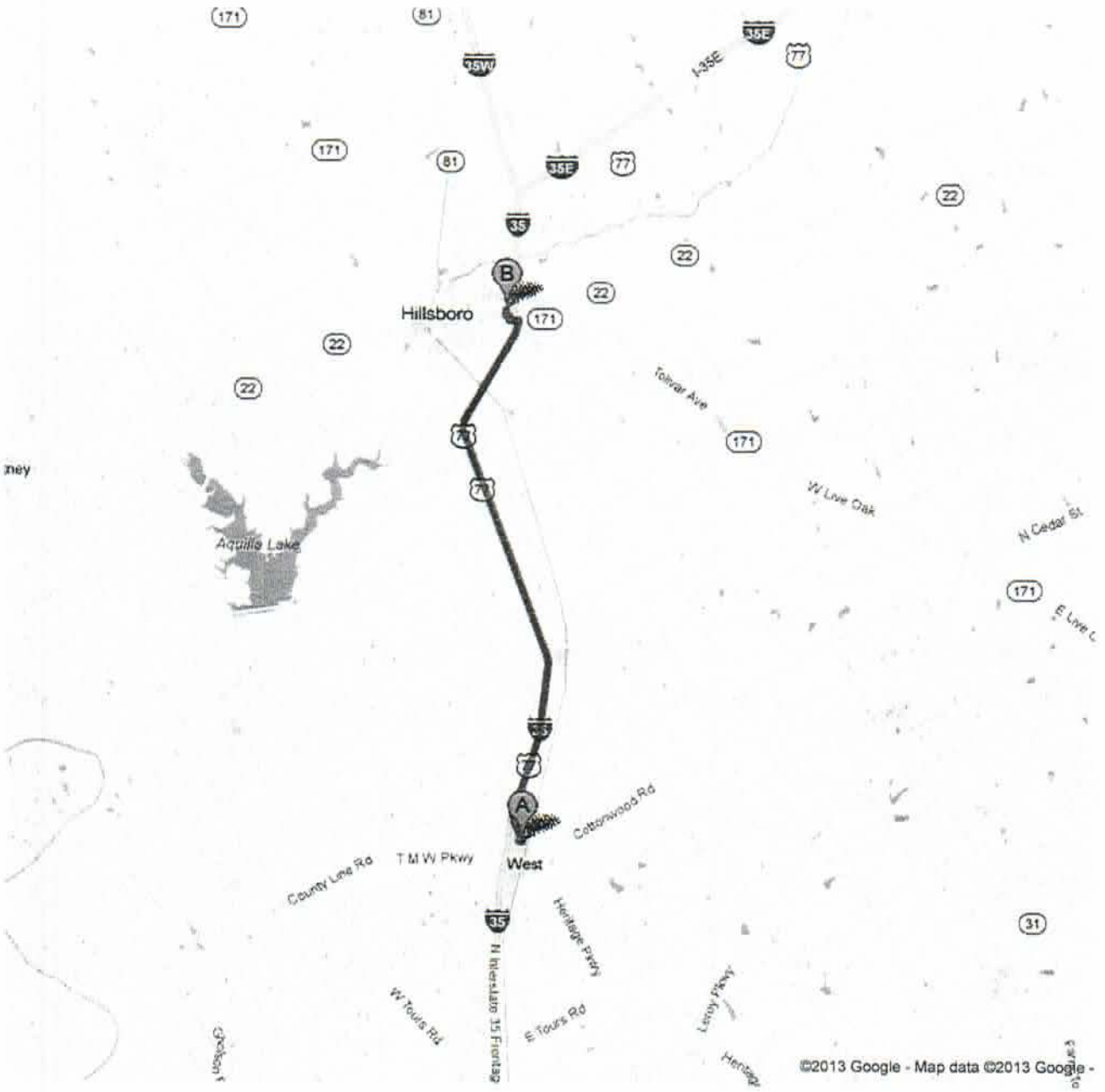
ATTACHMENT D

HOSPITAL MAP

Google

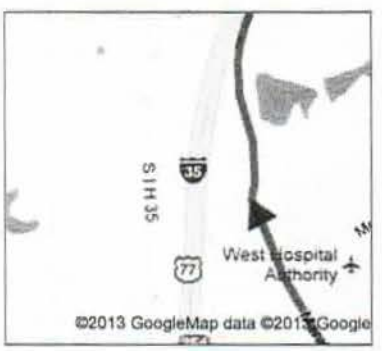
Directions to 101 Circle Dr, Hillsboro, TX 76645

15.3 mi – about **18 mins**



A 406 W Shook St, West, TX 76691

	1. Head **west** on **W Shook St** toward **N Marable St**	go 404 ft total 404 ft
↱	2. Take the 1st right onto **N Marable St**	go 0.1 mi total 0.2 mi
↰	3. Take the 2nd left onto **Marable St** About 1 min	go 0.4 mi total 0.6 mi
↗	4. Slight right onto **S I H 35/S Interstate 35/N Interstate 35 Frontage Rd** About 1 min	go 0.4 mi total 1.0 mi
↖	5. Take the **Interstate 35 N** ramp on the left	go 328 ft total 1.1 mi
35	6. Merge onto **I-35 N** About 11 mins	go 13.3 mi total 14.3 mi
↗	7. Take exit **368A** toward **Hillsboro**	go 0.1 mi total 14.5 mi
	8. Merge onto **S I H 35/S Interstate 35/N Interstate 35 Frontage Rd**	go 0.2 mi total 14.7 mi
171	9. Turn left onto **TX-171 N/TX-22 W** About 2 mins	go 0.3 mi total 15.0 mi
↱	10. Turn right onto **Coke Ave**	go 0.1 mi total 15.1 mi
↰	11. Turn left onto **E Elm St**	go 413 ft total 15.2 mi
↱	12. Take the 1st right onto **Jane Ln** Destination will be on the right	go 0.1 mi total 15.3 mi



B 101 Circle Dr, Hillsboro, TX 76645

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.

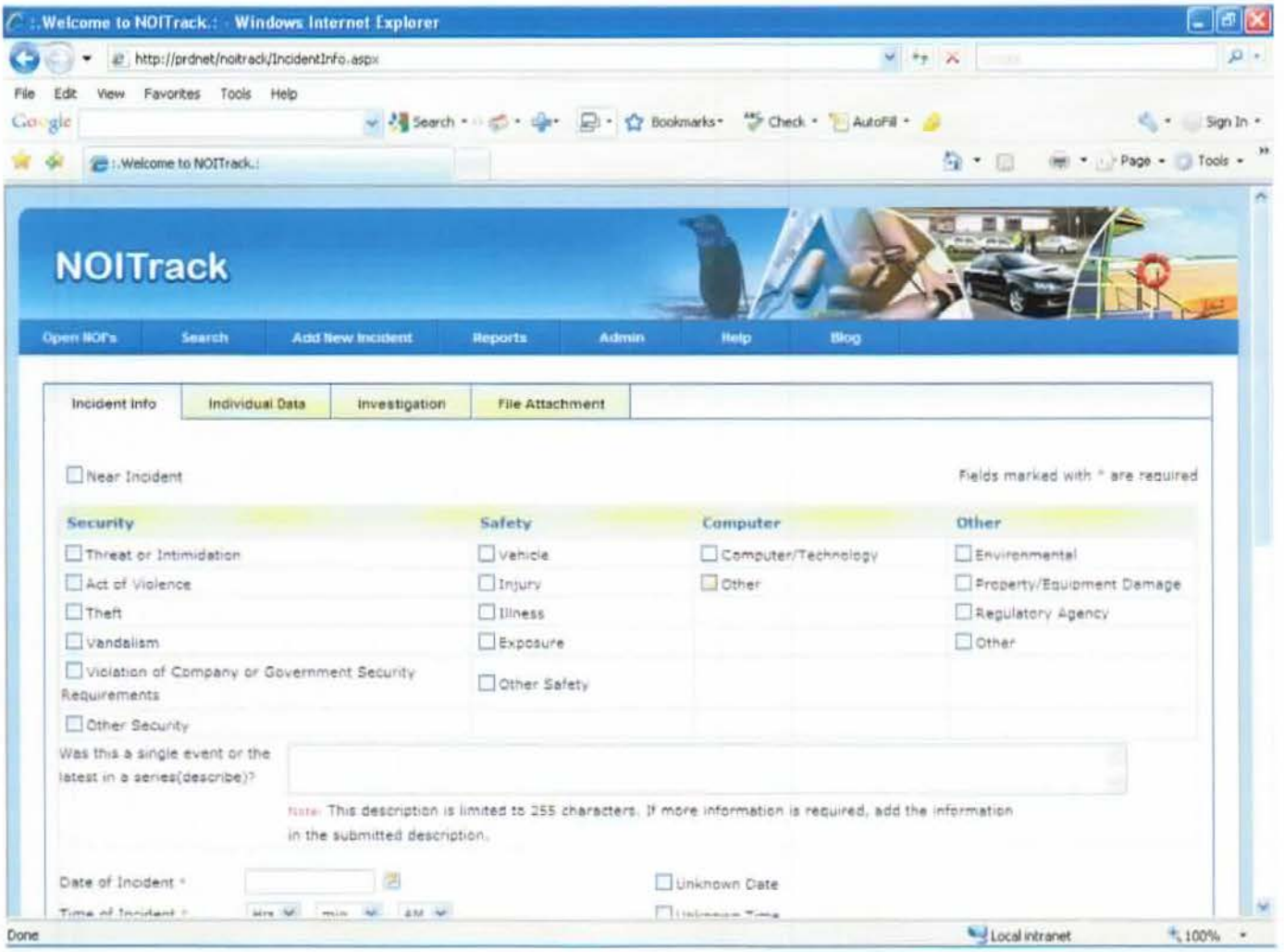
Map data ©2013 Google

Directions weren't right? Please find your route on maps.google.com and click "Report a problem" at the bottom left.

ATTACHMENT E

INSTRUCTIONS FOR REPORTING NEAR INCIDENTS AND INCIDENTS

The NOI trac should be utilized to report ALL incidents. Incidents include: employee accidents, injuries, auto accidents, property damage/loss, information /data breaches, security concerns, subcontractor injuries/accidents/events, *OR other liability situations or circumstances that could give rise to a claim.* The NOI form is intended to be a preliminary summary (**due within 24 hours/one business day**) reporting what is immediately known of an event or situation. After a NOI report is released, and the appropriate resources within the organization are notified, an investigation should be initiated.



Please go to NOITrack using the following link to complete incident reporting. If you are in the field and do not have access to NOITrack, please contact someone in your office to do the reporting for you.

http://prdnet/noitrack/IncidentInfo.aspx

Questions can be directed to Susan Hipp-Ludwick at 610.701.3046 or Matt Dillon at 610.701.3667

ATTACHMENT G

AHA CHECKLIST AND ERM TOOL SUMMARY

(FOR ER'S LONGER THAN 72 HOURS IN DURATION, RE EVALUATE ERM TOOL)

This tool must be used at the Proposal Stage in PLC, and must also be used prior to the time of individual project execution, including individual Task Orders/Work Assignments such as on an ID/IQ contract.

Click link below for instructions on using this form:

Please provide the following information:

Important information for Opportunity Number OR Project ID field:

It is critical that you enter only one of these values as follows to support linking from other systems:

- Please enter the number or ID only.
- Do not include commas in Opportunity Numbers (enter "111.817", not "111,817")
- Do not add any additional text. This should go in other fields.
- For START EPA/TRACK TDDs, please enter the primary labor work order number of the TDD.

Division: South	**PLC Approver:**
Opportunity Number OR Project ID: (see above) EPA START Region 6 ER Projects General - Dallas Office	**Client Service Manager:** Robert Beck
Opportunity OR Project Name: EPA START Region 6 ER Projects General - Dallas Office	**Project Manager:** David Crow
ERM Preparer: Ben Latham	**Subject Matter Expert:**
Brief Description of Scope of Work: Emergency Response to Oil and HAZMAT Incidents	**EHS Officer:** Various

* Indicates Required Fields

Please answer the following 8 questions: I am confident that this project will not result in risks to the following:

1. I am confident that this project will not result in risks to Air

-Consider the following in your answer

- Potential release of contaminants (VOCs, particulates, etc.) into air.
- Demolition/removal/renovation of structure containing ACM (Asbestos Containing Material).
- Demolition, removal or renovation of any structure containing ozone depleting substances (e.g., air conditioners, Freon, CFCs).
- Remediation, demolition, removal or renovation of any structure has potential for release of lead or dust, VOCs or CO which may migrate beyond site boundaries.
- Need for air permits.
- Operating a source of air emissions.

Answer

◉ Yes ○ No

2. I am confident that this project will not result in risks to Water

-Consider the following in your answer

- Surface water or ground water impact.
- Any impact to wetlands or floodplains
- Any injection of products, treatment chemicals, or waste materials into the ground
- Potential for storm water discharges to surface water or storm sewer (including all construction activities).
- Removal of vegetation creating potential future runoffs.
- Site clearing, dredging, filling on/near water or wetlands.
- Demolition, removal or renovation of any structure containing asbestos.
- Potential for spill/release of hazardous substance or wastes.
- Storage of oil or petroleum products on site.
- Any impact to drinking water supplies.

Answer

◉ Yes ○ No

3. I am confident that this project will not result in risks to Wastes

-Consider the following in your answer

- Generating/managing/characterizing any wastes.
- Responsible for preparing hazardous wastes for transportation and/or disposal (including characterization and/or manifesting).
- Presence of lead or lead-containing materials. Generating/managing any universal wastes (e.g., mercury containing items such as fluorescent lamps, computers, batteries, switches, thermostats, non-empty aerosol cans).
- Presence of PCBs or PCB-contamination.
- Disruption or removal of asbestos-containing materials (ACM).
- Responsible for advising client of characterization of waste.

Answer

◉ Yes ○ No

4. I am confident that this project will not result in risks to Land

-Consider the following in your answer

- Habitat for endangered, threatened or special interest species.
- Historically sensitive areas (e.g., wetlands, floodplains, critical habitat, prime farm land, coastal zones, historic structures, etc.)
- Naturally occurring radioactive material.

Answer

◉ Yes ○ No

5. I am confident that this project will not result in risks to Other Environmental Concerns

–Consider the following in your answer

- Storage or transportation/disposal of radioactive material. Equipment containing radioactive material.
- Large quantity of hazardous chemicals such as sulfuric acid, chlorine (used for treatment systems), Hydrogen Peroxide, Potassium Permanganate.
- UXO, MEC or other materials. Significant fire and/or explosion hazard
- Consider noise levels as well.

Answer: ◉Yes ○No

6. I am confident that this project will not result in risks to Stakeholder/Client Concerns

–Consider the following in your answer

- Enforcement Action. Notices of Violation. Court Mandates.
- IRIS. Environmental Liability Transfer. Guaranteed Fixed Price Remediation.
- Impacts to tenants or local residents from activities.
- Impacts to historic or Archeological sites.

Answer: ◉Yes ○No

7. I am confident that this project will not result in risks to Subcontractors

–Consider the following in your answer

- Risk Elements 1 through 6 above.
- Previous successful working relationship. SubTrack Status.
- Approved Terms and Conditions.

Answer: ◉Yes ○No

8. I am confident that this project will not result in risks to the environment with respect to shipping samples, equipment, or other regulated materials to or from a project location

Answer: ◉Yes ○No

HAZARD CHECKLIST Site Manager/EHS Officer:
Date:
Location:
Address:

Task Team (name or reference via daily sign-in sheet)

HAZARDS IDENTIFIED (check those applicable)

	Chemical		Biological		Physical		Aerial lifts		Remote Areas
☐	Flammable/combustible	☐	Insects	☐	Noise	☐	Man. Material Handling	☐	Materials handling
☐	Corrosive	☐	Animals	☐	Heat	☐	Demolition	☐	High Pressure Washers
☐	Oxidizer	☐	Plants	☐	Cold	☐	Excavation	☐	Hand and Power Tools
☐	Reactive	☐	Mold/Fungus	☐	Inclement Weather	☐	Pile Driving	☐	Low Illumination
☐	Toxic	☐	Viral/Bacterial	☐	Hot Work	☐	Welding/Cutting/Burn	☐	Drilling & Boring
☐	Inhalation	☐	Density Gauges	☐	Confined Spaces	☐	Hot Surfaces	☐	Striking against/Struck-by
☐	Eyes/Skin	☐	Radiological	☐	Stored hazardous Energy	☐	Hot Materials	☐	Caught-in/Caught between
☐	Pesticides	☐	Ultra-Violet	☐	Elevation	☐	Rough Terrain	☐	Pushing/pulling
☐	Carcinogen	☐	Sunlight	☐	Utilities	☐	Compressed Gases	☐	Falls at same level
☐	Asbestos	☐	Infrared	☐	Machinery	☐	Hazardous Mat. Storage	☐	Falls from elevation
☐	Lead	☐	Lasers	☐	Mobile equipment	☐	Diving	☐	Repetitive motion
☐	UXO/OE/ CWM	☐	XRF	☐	Cranes	☐	Operation of Boats	☐	High (>110v) Electricity
☐	Process Safety	☐	Isotopes	☐	Manual Material Handling	☐	Working Over Water	☐	Slippery surface Ice/Snow
☐	Applying Paint/Coatings	☐		☐	Ladders	☐	Traffic	☐	
☐		☐		☐	Scaffolding	☐	Site Security	☐	

REQUIRED PROTECTION (check those applicable)

	Engineering Controls		Administrative Control		PPE				Contingency
☐	Guard Rails	☐	Qualified for task	☐	Air Supplying Respirator	☐	Tyvek coveralls	☐	Emergency Signal Known
☐	Machine Guards	☐	Trained/Certified	☐	Air Purifying Respirator	☐	Coated Coveralls	☐	Eye wash/shower Location
☐	Sound Barriers	☐	Hot Work Permit	☐	SCBA	☐	Welding leathers	☐	First Aid Kit Location
☐	Enclosure	☐	CSE Permit	☐	Hard Hat	☐	CWM	☐	Fire Extinguisher Location
☐	Elevation	☐	Lockout/Tag Out	☐	Ear Plugs	☐	Safety Shoes/Boots	☐	Spill Kit Location
☐	Isolation	☐	Work Permit	☐	Ear Muffs	☐	Rubber Boots	☐	Severe weather shelter
☐	GFCI	☐	Dig Safe Permit	☐	Safety Glasses	☐	Gloves	☐	Evacuation Routes
☐	Assured Ground Program	☐	Contingency Plan	☐	Goggles	☐	Cooling Suits		
☐	Apply Anti-slip/skid Mat	☐	Critical Lift Plans	☐	Chemical Goggles	☐	Ice Vests		
		☐	Equip. Inspection Sheets	☐	Face Shield	☐	Radiant heat Suits		
				☐	Thermal Shield	☐	Fall Arrest		
				☐	Welding Mask	☐	PFD		
				☐	Cutting Glasses	☐	Electrical insulation		

Any Modification to Tasks (list)	Other tasks or activities that may affect my activity	Reasons for any changes indicated above

Environmental Compliance Considerations:

☐	Generation of Hazardous Waste*	☐	→Waste Identification & Manifesting - Marking, Placarding, Labeling
☐	Generation of Investigation Derived Waste*	☐	→Training & Licensing for Use of Radioactive Materials/Sources
☐	Treatment, Storage, or Disposal of Hazardous Waste*	☐	→ Containers: dated, labeled, closed, full, stored less than 90 days
☐	Contingency to prevent or contain hazardous materials or oil spills or discharges to drains, body of water, soil*	☐	→ Risk of explosion or catastrophic release due to chemical storage or processing involving reactivity, flammables, solvents or explosives
☐	Disturbing of Asbestos Containing Materials (ACM)*	☐	→Training & Licensing for Asbestos Remediation Activities
☐	Application of Pesticides or Herbicides*	☐	
☐	Work on Above or Under-ground Storage Tanks*	☐	
☐	Transportation, Storage or Disposal of Radioactive Material*	☐	
☐	Activities producing or generating Air Emissions (or fugitive "fence-line" emissions) requiring either monitoring and/or permit*	☐	
☐	Excavations, Drilling, Probing or other activities that could impact underground utilities, pipelines, sewer or treatment systems.	☐	
☐	Shipment of Hazardous Waste off-site* Shipment of Samples in accordance with DOT/IATA	☐	

* Indicates need for an environmental compliance plan.

ATTACHMENT H

START-3 AWARENESS OF ALLERGIES, CORRECTIVE LENS AND POISON IVY FOR PERSONELL

Team Member	Allergies	Type	Corrective Eye Wear	Poison Ivy	Comments
Alex Byrum	No	None	No	Yes	
David McCarty	Yes	Penicillin	No	No	
Paola Vasquez	No	None	Yes, Glasses	No.	
Danette Parnell	No	None	Yes	Yes	
Melinda Luetke	No	None	Yes, Contacts	No	
Ben Latham	No	None	Yes, Glasses	Yes	
Sam Cheek	No	None	Yes, Glasses	No	
Heth Parnell	No	None	Yes.	No	
George Bumgarner	No	None	Yes, Glasses	Yes	Reading
Tori Gomez	No	None	Yes	No	Nighttime
James Beavis	No	None	No	No	
Hilary Gafford	No	None	Yes – gas permeable contact lenses	No	
Tobias Richards	Yes	Aspirin	No	Yes	

Ammonia Inhalation Fact Sheet

Federal government recommendations to protect human health via the inhalation exposure pathway for ammonia

The Occupational Safety and Health Administration's (OSHA) permissible exposure limit (PEL) is 50 ppm. The National Institute of Occupational Health and Safety (NIOSH) was set an acceptable ten-hour exposure limit at 25 parts of ammonia per one million parts of air (ppm) and a short-term exposure level (STEL) (15 minutes) at 35 ppm.

EPA's Acute Exposure Guideline Levels (AEGLs):

Ammonia (ppm)

	10 min	30 min	60 min	4 hr	8 hr
AEGL 1	30	30	30	30	30
AEGL 2	220	220	160	110	110
AEGL 3	2,700	1,600	1,100	550	390

AEGLs represent threshold exposure limits for the general public and are applicable to emergency exposure periods ranging from 10 minutes to 8 hours. AEGL-1 and AEGL-2, and AEGL-3 values are distinguished by varying degrees of severity of toxic effects. The recommended exposure levels are applicable to the general population including infants and children, and other individuals who may be susceptible.

The three AEGLs have been defined as follows:

AEGL-1

Above this airborne concentration, expressed as parts per million or milligrams per cubic meter (ppm or mg/m3) the general population, including susceptible individuals, could experience notable discomfort, irritation, or certain asymptomatic nonsensory effects. However, the effects are not disabling and may go away soon and reversible upon stopping exposure.

AEGL-2

Above this airborne concentration (expressed as ppm or mg/m3) the general population, including susceptible individuals, could experience irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape.

AEGL-3

Above this airborne concentration (expressed as ppm or mg/m3) the general population, including susceptible individuals, could experience life-threatening health effects or death.

Airborne concentrations below the AEGL-1 represent exposure levels that can produce mild and progressively increasing but transient and nondisabling odor, taste, and sensory irritation or certain asymptomatic, nonsensory effects.

Although the AEGL values represent threshold levels for the general public, including susceptible subpopulations, such as infants, children, the elderly, persons with asthma, and those with other illnesses, individuals could experience the effects described at concentrations below the corresponding AEGL.

INTEGRATED RISK INFORMATION SYSTEM (IRIS)

The EPA IRIS has a chronic Reference Concentration (RfC) for ammonia of approximately 0.1 ppm based upon total uncertainty factors of 30 (an uncertainty factor of 10 for sensitive individuals and a factor of 3 for database deficiencies including the lack of chronic data). The chronic RfC allows for continuous exposure up to a lifetime.

MINIMUM RISK LEVELS (MRLs)

The Agency for Toxic Substances and Disease Registry (ATSDR) has inhalation MRLs for ammonia of 1.7 ppm and 0.1 ppm for acute and chronic exposures, respectively.

HEALTH AND SAFETY SIGN IN SHEET
West Fertilizer
EPA REGION 6
West, Texas

Date: 4/19/2013				
Name	Signature	Shift	Affiliation	Site Phone
Sam Cheek		Night	START	972-977-1579
Tom Walzer		Night	START	713-705-1467
Lee Ellmaker		Night	START	775-771-8419
David Crow		Day	START	972-978-6802
Mark Balhoff		Day	START	832-651-5664
Ben Latham		Day	START	972-213-6618
Derrick Cobb		Day	START	832-447-4180
Alex Byrum		Day √	START	214-868-3966
Carmen Assunto		Day	EPA-PA	469-600-3158
Mark Hayes		Day	EPA	214-232-7134
Althea Foster		Day	EPA	214-789-1572
Paige Delgado		Night	EPA	469-371-2529
Gary Moore		Night	EPA	214-789-1627
Assembly Point	EPA Mobile Command Post			
Health and Safety topics:	Ammonia Exposure, Downed Power Lines, Sharps, Fatique, Situational Awareness, Vehicle traffic around command post, Hydration, Level D PPE, Hospital Route, On-site EMTs, Sign In/Out			
Additional Daily Comments:				

ScienceLab.com
Chemicals & Laboratory Equipment

Health	2
Fire	1
Reactivity	1
Personal Protection	E

Material Safety Data Sheet
Ammonium nitrate MSDS

Section 1: Chemical Product and Company Identification

Product Name: Ammonium nitrate

Catalog Codes: SLA3082, SLA4585

CAS#: 6484-52-2

RTECS: BR9050000

TSCA: TSCA 8(b) inventory: Ammonium nitrate

CI#: Not available.

Synonym: Ammonium Saltpeter; Nitric acid, ammonium salt

Chemical Name: Ammonium Nitrate

Chemical Formula: NH4NO3

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Ammonium nitrate	6484-52-2	100

Toxicological Data on Ingredients: Ammonium nitrate: ORAL (LD50): Acute: 2217 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator). Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to lungs, mucous membranes. The substance may be toxic to blood, gastrointestinal tract. Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: May be combustible at high temperature.

Auto-Ignition Temperature: 300°C (572°F)

Flash Points: CLOSED CUP: Higher than 93.3°C (200°F).

Flammable Limits: Not available.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances:
Slightly flammable to flammable in presence of heat, of combustible materials, of organic materials. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat, of combustible materials, of organic materials, of metals.

Fire Fighting Media and Instructions:
Oxidizing material. Do not use water jet. Use flooding quantities of water. Avoid contact with organic materials.

Special Remarks on Fire Hazards:
Caution: Strong Oxidizer. Contact with material may cause a fire. Contact with combustible or organic materials may cause fire.

Special Remarks on Explosion Hazards:
It is an oxidizing agent and can self-ignite/detonate when in contact with powdered metals and some organic materials such as Urea and Acetic Acid.

Section 6: Accidental Release Measures

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container.

Large Spill:

Oxidizing material. Stop leak if without risk. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all ignition sources. Call for assistance on disposal.

Section 7: Handling and Storage

Precautions:
Keep away from heat. Keep away from sources of ignition. Keep away from combustible material. Do not ingest. Do not breathe dust. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection:
Splash goggles. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits: Not available.

Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (white granular solid. Deliquescent solid.)

Odor: Odorless.

Taste: Not available.

Molecular Weight: 80.05 g/mole

Color: Not available.

pH (1% soln/water): 4.5 - 6.0 @ 25 deg. [Acidic.]

Boiling Point: Decomposition temperature: 210°C (410°F)

Melting Point: 169.6°C (337.3°F)

Critical Temperature: Not available.

Specific Gravity: 1.725 (Water = 1)

Vapor Pressure: Not applicable.

Vapor Density: Not available.

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, methanol, acetone.

Solubility:
Easily soluble in cold water, hot water. Soluble in acetone. Partially soluble in methanol. Insoluble in diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials

Incompatibility with various substances: Reactive with reducing agents, combustible materials, organic materials, metals, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Also incompatible with finely powdered metals (aluminum, copper, chromium, iron, zinc brass, nickel , lead, manganese, magnesium, antimony), acetic acid, ammonium chloride, phosphorus, sodium perchlorate, sulfur, bismuth, cadmium, chlorides, cobalt, potassium and ammonium sulfate, sodium, sodium hypochlorite, sodium-potassium alloy, organic materials and combustible materials (paper, oil, charcoal, etc.)

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 2217 mg/kg [Rat].

Chronic Effects on Humans:
Causes damage to the following organs: lungs, mucous membranes. May cause damage to the following organs: blood, gastrointestinal tract.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
Carcinogenic effects: At this time, no studies were found on the possible carcinogenicity of Ammonium Nitrate in humans or experimental animals. However nitrates can be reduced to nitrites in the body, and the formed nitrites can subsequently react with amines to form suspect carcinogens N-nitrosamines. Genetic Effects: No genetic data was found for ammonium. However, in general, nitrates and nitrites are genotoxic. Reproductive Effects: There has been some association between consumption of nitrate-contaminated well water and birth defects, especially neural tube defects. However, these studies would not specifically implicate Ammonium Nitrate.

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: Causes skin irritation. It may be absorbed through intact skin. Eyes: Causes eye irritation. Inhalation: Causes respiratory tract (nose, throat), and mucous membrane irritation. Symptoms may include: coughing, severe lung congestion, difficulty breathing. Inhalation of large amounts may cause systemic acidosis, Methemoglobinemia with symptoms similar to acute ingestion. Ingestion: Gastroenteritis with abdominal pain, nausea, vomiting, diarrhea. Exposure to large amounts may affect behavior/central nervous system, and blood and cause Methemoglobinemia, and systemic

acidosis. Symptoms of Methemoglobinemia include cyanosis (blue lips, eyelids, earlobes, and skin), headache, fatigue, weakness, convulsions, dizziness, loss of coordination, nausea, vomiting, dyspnea, and drowsiness. It may also affect the cardiovascular system and cause increased or decreased heart rate, and hypotension. Chronic Potential Health Effects: Ingestion: The toxicity of nitrates is due to in vivo conversion to nitrites. Chronic ingestion of more than 5 mg/kg/day is considered unacceptable. Primary overdose effects include orthostatic hypotension and Methemoglobinemia. Orthostatic hypotension, faintness, fatigue, weakness, depression, mental impairment, dizziness, shortness of breath, and reflex tachycardia are common; headache, nausea and vomiting may also occur. Chronic ingestion may also cause nephritis.

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 5.1: Oxidizing material.

Identification: : Ammonium Nitrate UNNA: 1942 PG: III

Special Provisions for Transport: Marine Pollutant

Section 15: Other Regulatory Information

Federal and State Regulations:
California prop. 65: This product contains the following ingredients for which the State of California has found to cause birth defects which would require a warning under the statute: No products were found. California prop. 65: This product contains the following ingredients for which the State of California has found to cause cancer which would require a warning under the statute: No products were found. Connecticut hazardous material survey.: Ammonium nitrate Rhode Island RTK hazardous substances: Ammonium nitrate Pennsylvania RTK: Ammonium nitrate Massachusetts RTK: Ammonium nitrate Massachusetts spill list: Ammonium nitrate New Jersey: Ammonium nitrate New Jersey spill list: Ammonium nitrate TSCA 8(b) inventory: Ammonium nitrate

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada): CLASS C: Oxidizing material.

DSCL (EEC):

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 1

Reactivity: 1

Personal Protection: E

National Fire Protection Association (U.S.A.):

Health: 0

Flammability: 0

Reactivity: 3

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Ammonia

Synonyms & Trade Names Anhydrous ammonia, Aqua ammonia, Aqueous ammonia [Note: Often u an aqueous solution.]

CAS No.	RTECS No.	DOT ID & Guide
7664-41-7	BO0875000 (/niosh-rtecs/BOD59F8.html)	1005 125 (http://wwwapps.tc.gc.ca/saf-sec-sur/gmu/erg/guidepage.aspx?guide=125) (http://www.cdc.gov/Other/disclaimer.html) (anhydrous) 2672 154 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=154) (http://www.cdc.gov/Other/disclaimer.html) (10-35% solutio 2073 125 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=125) (http://www.cdc.gov/Other/disclaimer.html) (>35-50% soluti 1005 125 (http://wwwapps.tc.gc.ca/saf-sec-sur/3/erg-gmu/erg/guidepage.aspx?guide=125) (http://www.cdc.gov/Other/disclaimer.html) (>50% solution)

Formula	Conversion	IDLH
NH_3	1 ppm = 0.70 mg/m3	300 ppm See: 7664417 (/niosh/idlh/7664417.html)

Exposure Limits
NIOSH REL : TWA 25 ppm (18 mg/m3) ST 35 ppm (27 mg/m3)
OSHA PEL † (nengapdxg.html) : TWA 50 ppm (35 mg/m3)

Measurement Methods
NIOSH 3800 (/niosh/docs/2003-154/pdfs/3800.pdf), 6015 (/niosh/docs/2003-154/pdfs/6015.pdf), 6016 (/niosh/docs/2003-154/pdfs/6016.pdf);
OSHA ID188 (http://www.osha.gov/dts/sltc/methods/inorganic/id188/id18 (http://www.cdc.gov/Other/disclaimer.html)
See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Colorless gas with a pungent, suffocating odor. [Note: Shipped as a liquefied compressed gas. Easily liquefied under pressure.]

MW:	BP:	FRZ:	Sol:	VP:	IP:
17.0	-28°F	-108°F	34%	8.5 atm	10.18 eV
	FLP: NA (Gas)	UEL: 28%	LEL: 15%	RGasD: 0.60	

[Note: Although NH_3 does not meet the DOT definition of a Flammable Gas (for labeling purp
it should be treated as one.]

Incompatibilities & Reactivities Strong oxidizers, acids, halogens, salts of silver & zinc [Note: Corrosi
copper & galvanized surfaces.]

Exposure Routes inhalation, ingestion (solution), skin and/or eye contact (solution/liquid)

Symptoms irritation eyes, nose, throat; dyspnea (breathing difficulty), wheezing, chest pain; pulmonary edema; pink frothy sputum; skin burns, vesiculation; liquid: frostbite

Target Organs Eyes, skin, respiratory system

Personal Protection/Sanitation (See protection codes (protect.html))
Skin: Prevent skin contact
Eyes: Prevent eye contact
Wash skin: When contaminated (solution)
Remove: When wet or contaminated (solution)
Change: No recommendation
Provide: Eyewash (>10%), Quick drench (>10%)

First Aid (See procedures (firstaid.html))
Eye: Irrigate immediately (solution/liquid)
Skin: Water flush immediately (solution/liquid)
Breathing: Respiratory support
Swallow: Medical attention immediately (solution)

Respirator Recommendations

NIOSH

Up to 250 ppm:
(APF = 10) Any chemical cartridge respirator with cartridge(s) providing protection against th
compound of concern*
(APF = 10) Any supplied-air respirator*

Up to 300 ppm:
(APF = 25) Any supplied-air respirator operated in a continuous-flow mode*
(APF = 25) Any powered, air-purifying respirator with cartridge(s) providing protection agains
compound of concern*
(APF = 50) Any chemical cartridge respirator with a full facepiece and cartridge(s) providing protection against the compound of concern
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or b
mounted canister providing protection against the compound of concern
(APF = 50) Any self-contained breathing apparatus with a full facepiece
(APF = 50) Any supplied-air respirator with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operate
pressure-demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressu
demand or other positive-pressure mode in combination with an auxiliary self-contained posit
pressure breathing apparatus

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or b mounted canister providing protection against the compound of concern
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0414 (/niosh/ipcsneng/neng0414.html) See MEDICAL TESTS: 0013 (/niosh/docs/2005-110/nmed0013.

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